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Abstract of the Disclosure:

A method and an apparatus for producing a chip-substrate connection by alloying or brazing, using a solder containing two or more components with at least two metal-containing constituents X and Y. The first constituent X contains in particular gold or a similar precious metal, and the second constituent Y being consumed in the soldering operation by reacting or being dissolved in the materials or layers which are to be joined. The solder has a hypereutectic concentration of the second constituent Y. The invention furthermore relates to a solder for the production of a chip-substrate connection, and to a semiconductor component with a semiconductor chip which is secured to a substrate by alloying or brazing.

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